

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-14847-1

TestAmerica Sample Delivery Group: SL2012
Client Project/Site: F15-049

For:

CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: Mr. Scot Fitzgerald



Authorized for release by:
12/4/2015 12:34:15 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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December 04, 2015

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012



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Job ID: 160-14847-1**Laboratory: TestAmerica St. Louis****Narrative****CASE NARRATIVE**

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
December 4, 2015
Attention: Scot Fitzgerald

SDG	: SL2012
Number of Samples	: 2 samples
Sample Matrix	: Solid
Data Deliverable	: Summary
Date SDG Closed	: November 14, 2015

II. Introduction

On November 14, 2 samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F15-049

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate flagging unless otherwise noted in the case narrative.

For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a "D" flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction (June 2014), Boron will be reported for Metals using method 6010. Boron will no longer be reported by method 6020.

Per CHPRC direction, due to the short hold times for Nitrate, Nitrite and Phosphate by IC (48 hours) as well as pH analysis (24 hours), a SIR request is not needed when samples are run outside 1x hold but within 2x hold. A narrative comment will be included below if a sample is run outside the lab-specified hold time for waters.

Per CHPRC direction, data for pH analysis will be reported outside 1x 24 hour hold time due to this being a field parameter.

IV. Definitions

Job ID: 160-14847-1 (Continued)**Laboratory: TestAmerica St. Louis (Continued)**

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For Metals analyses, per standard practice, all solid samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O** - For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M** - For inorganic analyses, the precision was outside control limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

Volatiles**Batch: 222537**

There was no dry weight correction (% moisture) for the following the sample due to aliquot being sent in Encore plugs which were used for VOA analysis. Samples reported as received.

The continuing calibration verification (CCV) associated with batch 160-222537 recovered outside recommended criteria, minimum relative response factor, for Acetone. A reporting limit (RL) standard was analyzed, and the target analyte was detected; therefore, the data have been qualified and reported. (CCVIS 160-222537/8)

Semivolatiles**Batch: 224286**

2,4,6-Tribromophenol (Surr) recovered low in the Method Blank and Terphenyl-d14 (Surr) recovered low in the sample B32HT8. These surrogates are not associated with client target analytes; therefore this excursion does not adversely affect the data. The data is reported with this narrative. B32HT8 (160-14847-1) and (MB 160-222947/1-A)

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

December 04, 2015

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Job ID: 160-14847-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Jayna Awalt
St. Louis Project Manager

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-14847-1

SDG Number: SL2012

Login Number: 14847

List Number: 1

Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.8°
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-049-027	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	SL2012	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H
SAMPLING LOCATION 207-A-10 -- SPT		PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. 605-474		FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO TestAmerica St. Louis		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. 77497681 3020	

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	Cool <=6C	14/40 Days	aG	1	250ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B32HT8	SOIL	NOV 12 2015	1117

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC		SSU-1	NOV 12 2015	TRVL-15-142
RELINQUISHED BY/REMOVED FROM SSU-1		CHPRC	NOV 13 2015	(1) 8270_SVOA_GCMS: COMMON {2-Methylphenol (cresol, o-)};
RELINQUISHED BY/REMOVED FROM L.D. Wall/CHPRC		FEDEX	NOV 13 2015	8270_SVOA_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};
RELINQUISHED BY/REMOVED FROM F E D E X				
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				
RELINQUISHED BY/REMOVED FROM				



17 lbs

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR F.M. Hall/CHPRC	SL2012	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8H
SAMPLING LOCATION 207-A-10 -- SPT		PROJECT DESIGNATION 207-A South Retention Basin (S-2-7) Closure Plan - Soil		SAF NO. F15-049	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. GWS-474		FIELD LOGBOOK NO. HNF-N-507 30	ACTUAL SAMPLE DEPTH 0-6"	COA 303792	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO TestAmerica St. Louis		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. 7749 7681 3620	

MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION Frozen/Cool <-7C and >-20C 14 Days	HOLDING TIME 14 Days	TYPE OF CONTAINER aGs	NO. OF CONTAINER(S) 5	VOLUME 40mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B32HT9	MATRIX* SOIL	SAMPLE DATE NOV 12 2015	SAMPLE TIME 1117				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME NOV 12 2015 1400	RECEIVED BY/STORED IN SSU-1	DATE/TIME NOV 12 2015 1430	TRVL-15-142 ** All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis. ** The laboratory is to use one of the low level VOA bottles for moisture content determination. ** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages. (1) 5035/8260_VOA: LOW LEVEL: COMMON {Acetone, Methylene chloride};	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME NOV 13 2015 0805	RECEIVED BY/STORED IN L.D. Wall	DATE/TIME NOV 13 2015 0805		
RELINQUISHED BY/REMOVED FROM L.D. Wall	DATE/TIME NOV 13 2015 1900	RECEIVED BY/STORED IN CH2M HILL	DATE/TIME NOV 13 2015 0805		
RELINQUISHED BY/REMOVED FROM FED EX	DATE/TIME	RECEIVED BY/STORED IN FEDEX	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 8/13/2015	FSR ID = FSR4704	TRVL NUM = TRVL-15-142	A-6003-618 (REV 2)





A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION				
Location: 207-A-10 TASC				
Sampler Initials and Date: F.M. Hall/CHPRG NOV 12 2015				
Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B32HT9	K	28.42	33.35	4.93
	L	28.54	33.25	4.71
	M	28.53	33.52	4.99
	N	28.77	33.68	4.91
	P	28.70	33.22	4.52

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

December 04, 2015

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774976813620

Ship date: **Fri 11/13/2015** Actual delivery: **Sat 11/14/2015 8:11 am**

RICHLAND, WA US **Delivered** EARTH CITY, MO US
Signed for by: B.DAVIS

Travel History

Date/Time	Activity	Location
- 11/14/2015 - Saturday		
8:11 am	Delivered	EARTH CITY, MO
7:54 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:24 am	At local FedEx facility	EARTH CITY, MO
5:11 am	At destination sort facility	BERKELEY, MO
4:26 am	Departed FedEx location	MEMPHIS, TN
12:31 am	Arrived at FedEx location	MEMPHIS, TN
- 11/13/2015 - Friday		
5:12 pm	Left FedEx origin facility	PASCO, WA
4:12 pm	Shipment information sent to FedEx	
3:23 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	774976813620	Service	FedEx Priority Overnight
Weight	17 lbs / 7.71 kgs	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	17 lbs / 7.71 kgs
Shipper reference	gws-474	Packaging	Your Packaging
Special handling section	For Saturday Delivery, Additional Handling Surcharge		



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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



December 04, 2015

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049

TestAmerica Job ID: 160-14847-1
SDG: SL2012

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-14847-1	B32HT8	Solid	11/12/15 11:17	11/14/15 08:15
160-14847-2	B32HT9	Solid	11/12/15 11:17	11/14/15 08:15

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Client: CH2M Hill Plateau Remediation Company
Project/Site: F15-049TestAmerica Job ID: 160-14847-1
SDG: SL2012**Method: 8260C - Volatile Organic Compounds by GC/MS**Client Sample ID: B32HT9
Date Collected: 11/12/15 11:17
Date Received: 11/14/15 08:15Lab Sample ID: 160-14847-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	5.5	U	17	5.5	ug/Kg		11/18/15 06:49	11/18/15 13:35	1
Methylene Chloride	1.3	U	4.2	1.3	ug/Kg		11/18/15 06:49	11/18/15 13:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	116		59 - 150				11/18/15 06:49	11/18/15 13:35	1
Dibromofluoromethane (Surr)	94		53 - 143				11/18/15 06:49	11/18/15 13:35	1
1,2-Dichloroethane-d4 (Surr)	104		67 - 132				11/18/15 06:49	11/18/15 13:35	1
Toluene-d8 (Surr)	99		74 - 135				11/18/15 06:49	11/18/15 13:35	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)Client Sample ID: B32HT8
Date Collected: 11/12/15 11:17
Date Received: 11/14/15 08:15Lab Sample ID: 160-14847-1
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	34	U	340	34	ug/Kg	☼	11/21/15 15:03	11/25/15 20:17	1
3 & 4 Methylphenol	69	U	680	69	ug/Kg	☼	11/21/15 15:03	11/25/15 20:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	89		54 - 102				11/21/15 15:03	11/25/15 20:17	1
2,4,6-Tribromophenol (Surr)	50		47 - 125				11/21/15 15:03	11/25/15 20:17	1
Nitrobenzene-d5 (Surr)	91		44 - 120				11/21/15 15:03	11/25/15 20:17	1
Phenol-d5 (Surr)	92		51 - 104				11/21/15 15:03	11/25/15 20:17	1
Terphenyl-d14 (Surr)	50		59 - 98				11/21/15 15:03	11/25/15 20:17	1
2-Fluorobiphenyl (Surr)	72		59 - 110				11/21/15 15:03	11/25/15 20:17	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-222534/1-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222534

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	6.5	U	20	6.5	ug/Kg		11/18/15 06:49	11/18/15 09:03	1
Methylene Chloride	1.6	U	5.0	1.6	ug/Kg		11/18/15 06:49	11/18/15 09:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		59 - 150	11/18/15 06:49	11/18/15 09:03	1
Dibromofluoromethane (Surr)	91		53 - 143	11/18/15 06:49	11/18/15 09:03	1
1,2-Dichloroethane-d4 (Surr)	100		67 - 132	11/18/15 06:49	11/18/15 09:03	1
Toluene-d8 (Surr)	99		74 - 135	11/18/15 06:49	11/18/15 09:03	1

Lab Sample ID: LCS 160-222534/2-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Acetone	50.0	54.9		ug/Kg		110	39 - 140
Methylene Chloride	50.0	49.9		ug/Kg		100	76 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		59 - 150
Dibromofluoromethane (Surr)	92		53 - 143
1,2-Dichloroethane-d4 (Surr)	100		67 - 132
Toluene-d8 (Surr)	99		74 - 135

Lab Sample ID: LCSD 160-222534/3-A
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Acetone	50.0	49.4		ug/Kg		99	39 - 140	11	20
Methylene Chloride	50.0	47.8		ug/Kg		96	76 - 120	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		59 - 150
Dibromofluoromethane (Surr)	89		53 - 143
1,2-Dichloroethane-d4 (Surr)	98		67 - 132
Toluene-d8 (Surr)	99		74 - 135

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Acetone	5.5	U	41.9	47.6		ug/Kg		114	54 - 139
Methylene Chloride	1.3	U	41.9	43.0		ug/Kg		102	77 - 123

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	117		59 - 150

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-14847-2 MS
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	93		53 - 143
1,2-Dichloroethane-d4 (Surr)	105		67 - 132
Toluene-d8 (Surr)	103		74 - 135

Lab Sample ID: 160-14847-2 MSD
Matrix: Solid
Analysis Batch: 222537

Client Sample ID: B32HT9
Prep Type: Total/NA
Prep Batch: 222534

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	5.5	U	41.3	48.5		ug/Kg		117	54 - 139	2	20
Methylene Chloride	1.3	U	41.3	45.6		ug/Kg		110	77 - 123	6	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		59 - 150
Dibromofluoromethane (Surr)	95		53 - 143
1,2-Dichloroethane-d4 (Surr)	101		67 - 132
Toluene-d8 (Surr)	100		74 - 135

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-222947/1-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	33	U	330	33	ug/Kg		11/21/15 15:03	11/25/15 15:54	1
3 & 4 Methylphenol	67	U	660	67	ug/Kg		11/21/15 15:03	11/25/15 15:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	78		54 - 102	11/21/15 15:03	11/25/15 15:54	1
2,4,6-Tribromophenol (Surr)	33		47 - 125	11/21/15 15:03	11/25/15 15:54	1
Nitrobenzene-d5 (Surr)	85		44 - 120	11/21/15 15:03	11/25/15 15:54	1
Phenol-d5 (Surr)	85		51 - 104	11/21/15 15:03	11/25/15 15:54	1
Terphenyl-d14 (Surr)	68		59 - 98	11/21/15 15:03	11/25/15 15:54	1
2-Fluorobiphenyl (Surr)	68		59 - 110	11/21/15 15:03	11/25/15 15:54	1

Lab Sample ID: LCS 160-222947/2-A
Matrix: Solid
Analysis Batch: 224286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	6670	5240		ug/Kg		79	53 - 97
3 & 4 Methylphenol	6670	5720		ug/Kg		86	58 - 108

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	84		54 - 102
2,4,6-Tribromophenol (Surr)	53		47 - 125

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-222947/2-A
 Matrix: Solid
 Analysis Batch: 224286

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 222947

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5 (Surr)	85		44 - 120
Phenol-d5 (Surr)	85		51 - 104
Terphenyl-d14 (Surr)	69		59 - 98
2-Fluorobiphenyl (Surr)	69		59 - 110

Lab Sample ID: 160-14847-1 MS
 Matrix: Solid
 Analysis Batch: 224286

Client Sample ID: B32HT8
 Prep Type: Total/NA
 Prep Batch: 222947

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
2-Methylphenol	34	U	6900	5480		ug/Kg	*	79	46 - 98
3 & 4 Methylphenol	69	U	6900	5940		ug/Kg	*	86	48 - 111

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorophenol (Surr)	87		54 - 102
2,4,6-Tribromophenol (Surr)	60		47 - 125
Nitrobenzene-d5 (Surr)	88		44 - 120
Phenol-d5 (Surr)	88		51 - 104
Terphenyl-d14 (Surr)	69		59 - 98
2-Fluorobiphenyl (Surr)	70		59 - 110

Lab Sample ID: 160-14847-1 MSD
 Matrix: Solid
 Analysis Batch: 224286

Client Sample ID: B32HT8
 Prep Type: Total/NA
 Prep Batch: 222947

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-Methylphenol	34	U	6900	5660		ug/Kg	*	82	46 - 98	3	30
3 & 4 Methylphenol	69	U	6900	6080		ug/Kg	*	88	48 - 111	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorophenol (Surr)	89		54 - 102
2,4,6-Tribromophenol (Surr)	69		47 - 125
Nitrobenzene-d5 (Surr)	92		44 - 120
Phenol-d5 (Surr)	89		51 - 104
Terphenyl-d14 (Surr)	73		59 - 98
2-Fluorobiphenyl (Surr)	75		59 - 110

GC/MS VOA**Prep Batch: 222534**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-2	B32HT9	Total/NA	Solid	5035	
160-14847-2 MS	B32HT9	Total/NA	Solid	5035	
160-14847-2 MSD	B32HT9	Total/NA	Solid	5035	
LCS 160-222534/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 160-222534/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 160-222534/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 222537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-2	B32HT9	Total/NA	Solid	8260C	222534
160-14847-2 MS	B32HT9	Total/NA	Solid	8260C	222534
160-14847-2 MSD	B32HT9	Total/NA	Solid	8260C	222534
LCS 160-222534/2-A	Lab Control Sample	Total/NA	Solid	8260C	222534
LCSD 160-222534/3-A	Lab Control Sample Dup	Total/NA	Solid	8260C	222534
MB 160-222534/1-A	Method Blank	Total/NA	Solid	8260C	222534

GC/MS Semi VOA**Prep Batch: 222947**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-1	B32HT8	Total/NA	Solid	3550C	
160-14847-1 MS	B32HT8	Total/NA	Solid	3550C	
160-14847-1 MSD	B32HT8	Total/NA	Solid	3550C	
LCS 160-222947/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 160-222947/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 224286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-1	B32HT8	Total/NA	Solid	8270D	222947
160-14847-1 MS	B32HT8	Total/NA	Solid	8270D	222947
160-14847-1 MSD	B32HT8	Total/NA	Solid	8270D	222947
LCS 160-222947/2-A	Lab Control Sample	Total/NA	Solid	8270D	222947
MB 160-222947/1-A	Method Blank	Total/NA	Solid	8270D	222947

General Chemistry**Analysis Batch: 222327**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-14847-1	B32HT8	Total/NA	Solid	Moisture	
160-14847-1 DU	B32HT8	Total/NA	Solid	Moisture	

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	12DCE	TOL
		(59-150)	(53-143)	(67-132)	(74-135)
160-14847-2	B32HT9	116	94	104	99
160-14847-2 MS	B32HT9	117	93	105	103
160-14847-2 MSD	B32HT9	107	95	101	100
LCS 160-222534/2-A	Lab Control Sample	107	92	100	99
LCSD 160-222534/3-A	Lab Control Sample Dup	111	89	98	99
MB 160-222534/1-A	Method Blank	113	91	100	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 12DCE = 1,2-Dichloroethane-d4 (Surr)
 TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	2FP	TBP	NBZ	PHL	TPH	FBP
		(54-102)	(47-125)	(44-120)	(51-104)	(59-98)	(59-110)
160-14847-1	B32HT8	89	50	91	92	50	72
160-14847-1 MS	B32HT8	87	60	88	88	69	70
160-14847-1 MSD	B32HT8	89	69	92	89	73	75
LCS 160-222947/2-A	Lab Control Sample	84	53	85	85	69	69
MB 160-222947/1-A	Method Blank	78	33	85	85	68	68

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPH = Terphenyl-d14 (Surr)
 FBP = 2-Fluorobiphenyl (Surr)